

I claim:

35. A method for continuously drying and heating aggregate for an asphalt plant, the steps of said method comprising:

orienting in a substantially horizontal attitude a rotatable cylinder having first and second ends with an internal passageway communicating therebetween and having first and second zones, with each said zone having first and second ends;

rotating said cylinder;

delivering primary aggregate material to the first end of said cylinder whereby rotation of said cylinder transports said aggregate material from said first end of said cylinder, through said first and second zones, to said second end of said cylinder;

generating a hot gas stream in said second zone of said cylinder to flow toward said first end of said cylinder in a countercurrent direction to the flow of aggregate material within said cylinder in order to heat and dry the aggregate material within said first zone;

introducing secondary material directly within said second zone of said cylinder whereby rotation of said cylinder transports said secondary material through said second zone to said second end of said cylinder; and

discharging said primary and secondary materials from said second end of said cylinder.

36. The method as set forth in claim 35, including the steps of creating a curtain of falling aggregate material within said first zone of said cylinder and flowing said hot gas stream through said curtain of falling aggregates to heat and dry the aggregate material.

37. The method as set forth in claim 35, including the step of preventing material from forming a curtain of falling material within said second zone of said cylinder.

38. The method as set forth in claim 37, including the step of shielding said material from direct radiant heat in the second zone.

39. The method as set forth in claim 35 wherein said delivering step comprises delivering virgin aggregate material to the first end of said cylinder and said introducing step comprises introducing recycle asphalt material, virgin aggregate material or both recycle asphalt material and virgin aggregate material to said second zone of said cylinder.

40. The method as set forth in claim 35, including the step of heating said hot gas stream discharged from the first end of said cylinder to elevate the temperature of said discharged hot gas stream prior to delivery to air pollution control equipment.

41. The method as set forth in claim 40, including the steps of sensing the temperature of said discharged hot gas stream prior to delivery to air pollution control equipment and controlling said heating step to maintain said discharged hot gas stream prior to delivery to air pollution control equipment above its dew point temperature.

42. A method for continuously drying and heating aggregate for an asphalt plant, the steps of said method comprising:

orienting in a substantially horizontal attitude a rotatable cylinder having first and second ends with an internal passageway communicating therebetween and having first and second zones, with each said zone having first and second ends;

rotating said cylinder;

delivering primary aggregate material to the first end of said cylinder whereby rotation of said cylinder transports said aggregate material from said first end of said cylinder, through said first and second zones, to said second end of said cylinder;

generating a hot gas stream in said second zone of said cylinder to flow toward said first end of said cylinder in a countercurrent direction to the flow of aggregate material within said cylinder in order to heat and dry the aggregate material within said first zone;

heating said hot gas stream discharged from the first end of said cylinder to elevate the temperature of said discharged hot gas stream prior to delivery to air pollution control equipment; and

discharging said primary and secondary material from said second end of said cylinder.

43. The method as set forth in claim 42, including the steps of sensing the temperature of said discharged hot gas stream prior to delivery to air pollution control equipment and controlling said heating step to maintain said discharged hot gas stream prior to delivery to air pollution control equipment above its dew point temperature.

44. A method for continuously producing an asphaltic composition from asphalt and aggregates, the steps of said method comprising:

orienting in a substantially horizontal attitude a rotatable cylinder having first and second ends with an internal passageway communicating therebetween and having first, second and third zones, with each said zone having first and second ends;

rotating said cylinder;

delivering primary aggregate material to the first end of said cylinder whereby rotation of said cylinder transports said aggregate material from said first end of said cylinder, through said first, second and third zones, to said second end of said cylinder;

generating a hot gas stream in said second zone of said cylinder to flow toward said first end of said cylinder in a countercurrent direction to the flow of aggregate material within said cylinder in order to heat and dry the aggregate material within said first zone;

introducing secondary material directly within said second zone of said cylinder whereby rotation of said cylinder transports said secondary material through said second and third zones, to said second end of said cylinder;

isolating said third zone of said cylinder from said hot gas stream;

mixing said primary aggregate material and said secondary material with liquid asphalt within said third zone isolated from said hot gas stream to produce an asphaltic composition; and

discharging said asphaltic composition from said second end of said cylinder.

45. The method as set forth in claim 44, including the steps of creating a curtain of falling aggregate material within said first zone of said cylinder and flowing said hot gas stream through said curtain of falling aggregates to heat and dry the aggregate material.

46. The method as set forth in claim 44, including the step of preventing material from forming a curtain of falling material within said second zone of said cylinder.
47. The method as set forth in claim 46, including the step of shielding said material from direct radiant heat from the second zone.
48. The method as set forth in claim 44 wherein said delivering step comprises delivering virgin aggregate material to the first end of said cylinder and said introducing step comprises introducing recycle asphalt material, virgin aggregate material or both recycle asphalt material and virgin aggregate material to said second zone of said cylinder.
49. The method as set forth in claim 44, including the step of heating said hot gas stream discharged from the first end of said cylinder to elevate the temperature of said discharged hot gas stream prior to delivery to air pollution control equipment.
50. The method as set forth in claim 49, including the steps of sensing the temperature of said discharged hot gas stream prior to delivery to air pollution control equipment and controlling said heating step to maintain said discharged hot gas stream prior to delivery to air pollution control equipment above its dew point temperature.
51. A method for continuously producing an asphaltic composition from asphalt and aggregates, the steps of said method comprising:

orienting in a substantially horizontal attitude a rotatable cylinder having first and second ends with an internal passageway communicating therebetween and having first, second and third zones, with each said zone having first and second ends;

rotating said cylinder;

delivering primary aggregate material to the first end of said cylinder whereby rotation of said cylinder transports said aggregate material from said first end of said cylinder, through said first, second and third zones, to said second end of said cylinder;

generating a hot gas stream in said second zone of said cylinder to flow toward said first end of said cylinder in a countercurrent direction to the flow of aggregate material within said cylinder in order to heat and dry the aggregate material within said first zone;

heating said hot gas stream discharged from the first end of said cylinder to elevate the temperature of said discharged hot gas stream prior to delivery to air pollution control equipment;

isolating said third zone of said cylinder from said hot gas stream;

mixing said aggregate material with liquid asphalt within said third zone isolated from said hot gas stream to produce an asphaltic composition; and

discharging said asphaltic composition from said second end of said cylinder.

52. The method as set forth in claim 51, including the steps of sensing the temperature of said discharged hot gas stream prior to delivery to air pollution control equipment and controlling said heating step to maintain said discharged hot gas stream prior to delivery to air pollution control equipment above its dew point temperature.